General Comment. The page numbering in the Final Draft document was not correctly formatted. The section numbers changed, but the page numbering did not reset (*e.g.*, page 4-1) between Sections 3 and 4. Please correct the page numbering in the final document.

Comment No. 3. Regarding sensitive life stages of fish, it was discussed at the 22 Feb 2013 meeting that ichthyoplankton trawls would be conducted during Phase 3 data collection in Newark Bay. Collection of ichthyoplankton is noted in Table 4-4, but not mentioned in Section 4.4.4 or in Section 4.5, Ecological Risk Assessment Data Needs. Please add the ichthyoplankton data collection to Sections 4.4.4 and 4.5.

Comment Nos. 4 and 151. Regarding bird egg tissue sampling, additional language regarding the potential use of a Probabilistic Risk Assessment (PRA) to assess food web modeling uncertainties was added to the Final Draft PFD (Section 4.4.5, Testable Hypothesis); however, additional clarification is needed. Please add a description of the avian survey that is planned to evaluate the feasibility of this Measurement Endpoint (ME) and discuss whether the "opportunistic" egg collection event is intended to take place coincident with the survey or subsequently, following evaluation of the survey data. Also, please explain basis for comment regarding necessary statistical robustness (*i.e.*, "Any egg tissue sampling would likely be an opportunistic event, but enough samples must be collected to achieve statistical robustness [*e.g.*, 12 samples]."). Field collected data are important because they provide a means to evaluate the uncertainties associated with early life stage exposures and can be used to corroborate exposure estimates derived using uptake models. Although statistical robustness is important, there are other considerations involved. Suggest revising the last sentence in Section 4.4.5 (page 4-54) to focus on specification of what these considerations are rather than to establish an absolute minimum sample size (as implied).

Comment No. 7. Section 6 of the Final Draft PFD has been revised to include an updated Pathways Analysis Report (PAR) as one of the "Next Steps" for the project, as requested; however, the focus is entirely on the Baseline Human Health Risk Assessment (BHHRA) and should be revised to include updating of relevant Baseline Ecological Risk Assessment (BERA) information as well. For instance, proposed wildlife dose exposure parameters for representative species and Toxicity Reference Values (TRVs) should be provided for EPA's review and approval in the Updated PAR.

Comment No. 21. The area percentages assigned in Sections 2.2.2.1 through 2.2.2.5 add up to about 88% of the NBSA as listed in the text: Subtidal Flats (43%), Transitional Slopes (10%), Channels (25%), Intertidal Areas (1%), and Industrial Waterfront (9%). Is the remainder of the area of the NBSA accounted for by portions of the tributaries, or by the figures of 6% each associated with the Historically-disturbed Subtidal Flats and Port Channels (based on the text, it could be interpreted that these fractions are a subset of the totals listed for the Subtidal Flats and Channels)? Please clarify and correct as necessary.

Comment No. 22. Although the revised text of Section 2.2.2.1 now acknowledges that depositional characteristics may differ between the historically disturbed subtidal flats and the remainder of the subtidal flats, there is no statement that these areas should be treated as distinct strata with regard to data needs and study design. The text should be revised to make the importance of differential deposition rates and impacts on ecological exposure estimates explicit. This is an important step in establishing exposure point concentrations for surficial sediment.

Comment No. 26. The text of Section 2.2.2.5 should be briefly expanded to clarify that the

Industrial Waterfront Area, encompassing the entire shoreline of the NBSA, also includes non-industrial land uses such as public walkways and docks.

Comment No. 29. The Final Draft document does not include an adequate description of how quantitative data (Section 3.2) will be used in the risk assessments. For example, no details were provided on how sediment data will be aggregated to develop exposure points (including distinctions between geomorphological areas such as the subtidal flats and historically-disturbed subtidal flats). The document should be revised accordingly.

Comment No. 36. The text was revised to place reference to Shooter's Island within Newark Bay proper and Table 3-6 (Inventory of Bird Observations in the Newark Bay Study Area) was added. The comment requested information on waterfowl species "known/suspected to breed in Newark Bay" and the revised information does not attempt to distinguish between breeding birds and migratory species and transients. This information is important due to the greater likelihood that resident populations will experience exposures to early life stages. Please provide summary text in Section 3.1.1.3 to identify categories of resident species and/or revise Table 3-6 to identify known or putative resident species as a subset of those that have been observed in the area.

Comment No. 45. It did not appear that the future developments (Bayfront I, Waterfront Development District, Kapkowski Road Redevelopment Area, and Staten Island North Shore) were added to Figure 3-1 or a new figure, as discussed in the comment response. Please revise the figure set accordingly.

Comment No. 48. The text of Section 3.2.2 was not revised to indicate that the only emerging contaminants to be considered in the risk assessment are polybrominated diphenyl ethers (PBDEs) and polychlorinated naphthalenes (PCNs). Please revise the text to narrow the proposed inclusion of emerging contaminants in the risk assessments to PBDEs and PCNs.

Comment No. 50. Please add a note to the text in Section 3.2.3.1, following Exhibit 3-4, noting that the average lipid concentration for the American Eel is based on only two samples, and underscoring the need for further characterization.

Comment No. 54. Rather than provide an explanation clarifying the intended meaning of "achieve equilibrium" in the last sentence on page 3-22 of Section 3.2.3.2, the phrase was deleted and the revised sentence is unclear in its conclusion ("…standard 28-day exposure duration was generally adequate…"). As a potential source of variability in the BSAFs discussed in this section, the text should be revised with the requested explanation of why it is important to achieve asymptotic behavior in laboratory-exposed tissue. Based on the information provided, it appears that inadequate exposure time could be a factor in explaining variability in site-derived BSAFs for at least one of the 2 species (N. *virens* and M. *nasuta*) tested.

Comment No. 61. Please add information on the proposed schedule for selection of benchmarks and TRVs to Section 6 (for example, as a component of the Updated PAR submittal).

Comment No. 64. Please add information regarding when further chemical of potential ecological concern (COPEC) screening data will be available (*e.g.*, surface water screen) to the text of Section 4.1 and Section 6.

Comment No. 70. Please add a note to Table 4-1 indicating that PCB congener data will be collected to obtain data for Total PCBs and to verify Aroclor totals.

Comment No. 71. Please add a note to Table 4-1 to inform document users that the form of mercury specified in the various studies/toxicological sources used to obtain screening benchmarks for the different environmental media (sediment, tissue types) evaluated in the Screening Level Ecological Risk Assessment (SLERA) differed, leading to the identification of different types of mercury as COPECs for different media.

Comment No. 84. The requested text on PAH toxicity due to narcosis does not appear to have been added to Section 4.1.4.2 of the Final Draft document.

Comment No. 98. Figure 4-2 was revised to include "O/X" for the requested categories; however, the legend indicates that this means "Large benthic fish only likely exposed during high tide." This note deviates from the recommended meaning: "the particular pathway is complete, but it has not been determined whether it is a major or minor pathway." Please revise Figure 4-2 to provide this explanation as a footnote to the benthic fish category, rather than in the Legend. The statement about large benthic fish should be mentioned in the text rather than the table.

Comment No. 106. Comment has not been addressed; please update text and Figure 4-2 to identify navigation channels as a distinct ecological exposure area. Tierra's response that maintenance dredging removes all recent/contaminated channel sediments prior to ecological exposure is not defensible based on the available information (although it is acknowledged that many of the channel areas have been dredged to a geologic age, uncontaminated stratum). Sloughing of channel slide slopes and preferential accumulation of sediments transported into Newark Bay are mechanisms that have the potential to contribute contaminated legacy sediment to the bottoms of the channels. The statement that "no exposure pathway exists to ecological receptors from channel sediments" is categorically incorrect. The deeper water portions of the Bay associated with the channels provide unique ecological habitat, where certain demersal fish and blue crabs overwinter, and refugia to certain fish species during the summer. The BERA should evaluate the channel as a separate habitat feature within the Bay. Figure 4-2 has not been revised to identify the channel sediment exposure area as requested. A new category under "Exposure Media" should be added.

Comment No. 110. Comment requested that rationale for selecting multiple trophic levels/feeding guilds be provided for selected receptors; however, requested information could not be located in the Draft Final PFD. Please add the information to Sections 4.4.2 through 4.4.6, as appropriate.

Comment No. 112. Based on the documented presence of the Atlantic sturgeon in NBSA, it should be included on the list of threatened and endangered (T&E) species. The response that it doesn't need to be included is unacceptable. In addition, a recent paper published in Environmental Toxicology and Chemistry (Chambers et al., 2012) demonstrates that this species (as well as shortnose sturgeon) are among the most sensitive of fish species to PCB 126 and TCDD exposures. Please correct spelling of scientific name of the Atlantic sturgeon (*Acipenser oxyrhynchus*) in Exhibit 3-1 and the species should also be added to the list of T&E species identified in Figure 4-1.

Comment No. 122. Please revise wording of Assessment Endpoint (AE) No. 3 in Table 4-3 to include the "and/or" phrasing requested ("Survival, growth, and/or reproduction of reptiles.").

Also, on page 4-51, please correct the typo in AE No. 3 by changing the word "invertebrates" to "reptiles."

Comment No. 137. Please add text to Section 4.4.2 to note that if adequate Macoma tissue cannot be collected for analysis, a caged bivalve study will be developed to address the risk question regarding COPEC residues in invertebrate tissues. Please add site-collected invertebrate tissue from softshell clams (*Macoma*) and/or blue crabs to the Table 4-4 "Biological Data/Media to be Sampled" column.

Comment No. 167. (Refer to discussion of Comment No. 49.) Please modify 6-inch sediment sampling interval in the first bullet in Section 4.5 to acknowledge the potential need to collect 6-12 inch depth interval samples in areas likely to experience surface sediment erosion.

Comment No. 168. Please add gut content analyses as a candidate ME for fish.

Comment No. 174. Refer to Comment No. 98.

Comments Nos. 177, 194, 199, 200, and 204. These comments address the need to distinguish between potential exposures to the "subtidal" and the "intertidal" sediments. Tierra's RTC states that the subtidal and intertidal sediments would be defined and further discussed within the context of receptor exposures. Note, however, that the Final Draft PFD eliminates the use of the "subtidal" and "intertidal" descriptors and simply refers to "sediment." Please clarify and discuss this decision.

Comment No. 189. Please add recreational areas along the Hackensack River to the Final PFD.

Comment No. 194. The text in the Final Draft PFD does not specify how "public access" is defined. Additional text describing accessible areas should be included in the revised PFD.

Comment No. 197. The Final Draft PFD text was not revised with regard to softshell clams as a potential medium of interest for consumption by anglers. Additional information is required to indicate if clams will be of interest in the BHHRA.

Comment No. 198. The text has been revised in Section 5.5.1 to state that exposures to anglers boating will be qualitative, but the text in Section 5.5.2 does not indicate whether exposures to recreational boaters will be qualitative. Please make the sections consistent by revising Section 5.5.2.

Comment No. 203. Additional clarification to Section 5.6.2.2 was not added with regard to the areas of intertidal exposures for human activity beyond areas where CSOs/SWOs are located. As indicated in the discussion of Comment No. 177 above, the Final Draft PFD eliminates the use of the "subtidal" and "intertidal" descriptors and just refers to "sediment."